



(1 of 2)

PTO/SB/08A (10-01)  
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **1** of **3**

### Complete if Known

Application Number	10/780,852
Filing Date	February 19, 2004
First Named Inventor	Louis B. Rosenberg
Art Unit	2173
Examiner Name	Unassigned
Attorney Docket Number	IMMR-050/04US

### U.S. PATENT DOCUMENTS

Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		6,422,941	7/23/2002	Thomer et al.	
		6,160,489	12/12/2000	Perry et al.	
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Examiner Initials <sup>a</sup>	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

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**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

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		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994
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		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.

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Sheet 5

of

8

**Complete if Known**

Application Number 10/780,852

Filing Date February 19, 2004

First Named Inventor Louis B. ROSENBERG

Art Unit 2173

Examiner Name Unassigned

Attorney Docket Number IMMR050/04US

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		WO	9532459		11-1995		
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		WO	9712357		04-1997		

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Sheet **6** of **8****Complete if Known**

Application Number	10/780,852
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First Named Inventor	Louis B. ROSENBERG
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Attorney Docket Number	IMMR050/04US

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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		Rosenberg, Louis B., "The Use of Virtual Fixtures as Perceptual Overlays to Enhance Operator Performance in Remote Environments," Air Force Material Command, Sep. 1992, pp. 1-42.

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		Rosenberg, Louis B. et al., "Perceptual Decomposition of Virtual Haptic Surfaces," IEEE, Oct. 1993.
		Rosenberg, Louis B., "Virtual Fixtures as Tools to Enhance Operator Performance in Telepresence Environments" SPIE Telemanipulator Technology, Mar. 1993.
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		Burdea, Gergore et al., "Dextrous Telerobotics with Force Feedback-An Overview," Robotica 1991, vol. 9.
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		EP	0 349 086	A1	Stork Kwant B.V.	01/03/1990
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		PCT	WO9520787			08/03/1995
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				<b>First Named Inventor</b>	Louis B. ROSENBERG
				<b>Group Art Unit</b>	
				<b>Examiner Name</b>	
<b>Sheet</b>	7	of	8	<b>Attorney Docket Number</b>	IMMR-050/04US

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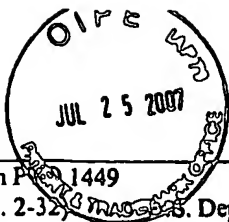
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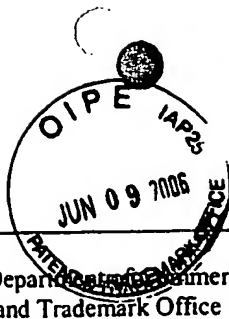
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Form PTO 1449 (Rev. 2-32) U.S. Department of Commerce Patent and Trademark Office				Atty. Docket No. IMMR-0013D (034701-007)		Serial No. 10/780,852	
Information Disclosure Statement by Applicant				Applicant: Louis B. Rosenberg et al.			
(Use several sheets if necessary)				Filed: 02/19/2004		Group: 2628	
U.S. Patent Documents							
Init.		Document No.	Date	Name	Class	Subclass	Filing Date
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First Named Inventor	Louis B. Rosenberg
Art Unit	2173
Examiner Name	Unassigned
Attorney Docket Number	IMMR-050/04US

### U.S. PATENT DOCUMENTS

Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Enoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

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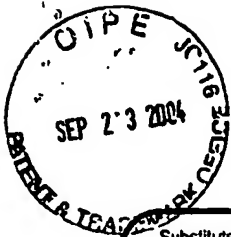
OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS		
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		<del>*Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part no. C-25502,* Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).</del>
		<del>*Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part no. C-25502,* Safe Flight Instrument Corporation, Revised 15 July 1980 (25 pages).</del>
		<del>SCANNELL, "Taking a Joystick Ride," Computer Currents, Boston Edition, Vol. 9, No. 11, November 1984</del>
/JB/		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992
		<del>NOLL, "Man-Machine Tactile," SID Journal, July/August 1972 Issue.</del>
		<del>ROSENBERG, "Virtual Pictures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," Ph.D. Dissertation, Stanford University, June 1994.</del>

Examiner Signature	/Jeffery Brier/	Date Considered	09/24/2007
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<sup>1</sup> EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 8

### Complete If Known

Application Number	10/780,852
Filing Date	February 19, 2004
First Named Inventor	Louis B. ROSENBERG
Art Unit	2173
Examiner Name	Unassigned
Attorney Docket Number	IMMR050/04US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/JB/		6,057,828	05-2000	Rosenberg et al.	
/JB/		6,050,718	04-2000	Schena et al.	
/JB/		6,046,727	04-2000	Rosenberg et al.	
/JB/		6,037,927	03-2000	Rosenberg	
/JB/		5,944,151	08-1999	Jakobs et al.	
/JB/		5,889,672	03-1999	Schuler et al.	
/JB/		5,880,714	03-1999	Rosenberg et al.	
/JB/		5,823,876	10-1998	Unbehand	
/JB/		5,781,172	07-1998	Engel et al.	
/JB/		5,769,640	07-1998	Jacobus et al.	
/JB/		5,739,811	04-1998	Rosenberg et al.	
/JB/		5,714,978	02-1998	Yamanaka et al.	
/JB/		5,704,791	01-1998	Gillio	
/JB/		5,701,140	12-1997	Rosenberg et al.	
/JB/		5,691,898	11-1997	Rosenberg et al.	
/JB/		5,656,901	08-1997	Kurita	
/JB/		5,634,794	06-1997	Hildreth et al.	
/JB/		5,623,582	04-1997	Rosenberg	
/JB/		5,591,082	01-1997	Jensen et al.	
/JB/		5,542,672	08-1996	Meredith	
/JB/		5,532,585	07-1996	Oudet et al.	
/JB/		5,512,919	04-1996	Araki	
/JB/		5,473,235	12-1995	Lance et al.	
/JB/		5,467,763	11-1995	McMahon et al.	
/JB/		5,459,382	10-1995	Jacobus et al.	
/JB/		5,451,924	09-1995	Massimino et al.	
/JB/		5,445,166	08-1995	Taylor	
/JB/		5,436,542	07-1995	Petelin et al.	
/JB/		5,428,748	06-1995	Davidson et al.	
/JB/		5,417,698	05-1995	Kashuba et al.	
/JB/		5,412,880	05-1995	Raab	
/JB/		5,402,582	04-1995	Raab	
/JB/		5,397,323	03-1995	Taylor et al.	
/JB/		5,396,266	03-1995	Brimhall	
/JB/		5,389,885	02-1995	Jacobus et al.	
Examiner Signature	/Jeffery Brier/		Date Considered	09/24/2007	

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **2** of **8**

## Complete If Known

Application Number	10/780,852
Filing Date	February 19, 2004
First Named Inventor	Louis B. ROSENBERG
Art Unit	2173
Examiner Name	Unassigned
Attorney Docket Number	IMMR050/04US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/JB/		5,384,460	01-1995	Tseng	
/JB/		5,381,080	01-1995	Schnell et al.	
/JB/		5,351,692	10-1994	Dow et al.	
/JB/		5,288,203	02-1994	Fuller et al.	
/JB/		5,282,777	11-1993	Low et al.	
/JB/		5,259,884	11-1993	Sampson	
/JB/		5,259,120	11-1993	Chapman et al.	
/JB/		5,251,156	10-1993	Heier et al.	
/JB/		5,251,127	10-1993	Raab	
/JB/		5,243,266	09-1993	Kasagami et al.	
/JB/		5,235,868	08-1993	Culver	
/JB/		5,230,623	07-1993	Guthrie et al.	
/JB/		5,220,260	06-1993	Schuler	
/JB/		5,209,131	05-1993	Baxter	
/JB/		5,204,824	04-1993	Fujimaki	
/JB/		5,197,003	03-1993	Moncrief et al.	
/JB/		5,189,806	03-1993	McMurtry et al.	
/JB/		5,189,355	02-1993	Larkins et al.	
/JB/		5,187,874	02-1993	Takahashi et al.	
/JB/		5,184,306	02-1993	Erdman et al.	
/JB/		5,181,181	01-1993	Glynn	
/JB/		5,178,012	01-1993	Culp	
/JB/		5,148,377	09-1992	McDonald	
/JB/		5,142,506	08-1992	Edwards	
/JB/		5,139,261	08-1992	Openiano	
/JB/		5,132,672	07-1992	Clark	
/JB/		5,131,844	07-1992	Marinaccio et al.	
/JB/		5,128,671	07-1992	Thomas, Jr.	
/JB/		5,128,948	06-1992	Mitchell et al.	
/JB/		5,118,180	05-1992	Fung et al.	
/JB/		5,107,262	04-1992	Cadoz et al.	
/JB/		5,095,303	03-1992	Clark et al.	
/JB/		5,088,055	02-1992	Oyama	
/JB/		5,088,046	02-1992	McMurtry et al.	
/JB/		5,078,517	12 1991	Ferranti et al.	

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Sheet 3 of 8

## Complete if Known

Application Number	10/780,852
Filing Date	February 19, 2004
First Named Inventor	Louis B. ROSENBERG
Art Unit	2173
Examiner Name	Unassigned
Attorney Docket Number	IMMR050/04US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/JB/		5,072,361	12-1991	Davies et al.	
/JB/		5,050,608	09-1991	Watanabe et al.	
/JB/		5,040,308	08-1991	McMurtry et al.	
/JB/		5,007,085	04-1991	Greanias et al.	
/JB/		4,983,901	01-1991	Lehmer	
/JB/		4,983,786	01-1991	Stevens et al.	
/JB/		4,982,504	01-1991	Soderberg et al.	
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/JB/		4,961,138	10-1990	Gorniak	
/JB/		4,945,501	07-1990	Bell et al.	
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/JB/		4,942,545	07-1990	Sapla	
/JB/		4,907,973	03-1990	Hon	
/JB/		4,907,970	03-1990	Meenen, Jr.	
/JB/		4,891,889	01-1990	Tomelleri	
/JB/		4,888,877	12-1989	Enderle et al.	
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/JB/		4,874,998	10-1989	Hollis, Jr.	
/JB/		4,868,549	09-1989	Affinito et al.	
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/JB/		4,849,692	07-1989	Blood	
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/JB/		4,798,919	01-1989	Miessler et al.	
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/JB/		4,791,934	12-1988	Brunnett	
/JB/		4,787,051	11-1988	Olson	
/JB/		4,769,763	09-1988	Trieb et al.	
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/JB/		4,706,294	11-1987	Ouchida	
/JB/		4,703,443	10-1987	Moriyasu	
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/JB/		4,679,331	07-1987	Koontz	
/JB/		4,677,355	06-1987	Baumann	

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Date  
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 4 of 8

### Complete if Known

Application Number	10/780,852
Filing Date	February 19, 2004
First Named Inventor	Louis B. ROSENBERG
Art Unit	2173
Examiner Name	Unassigned
Attorney Docket Number	IMMR050/04US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/JB/		4,676,002	06-1987	Slocum	
/JB/		4,654,648	03-1987	Herrington et al.	
/JB/		4,653,011	03-1987	Iwano	
/JB/		4,638,798	01-1987	Shelden et al.	
/JB/		4,601,208	07-1986	Watson	
/JB/		4,593,470	08-1986	Davies	
/JB/		4,571,834	02-1986	Fraser et al.	
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/JB/		4,391,282	07-1983	Ando et al.	
/JB/		3,944,798	03-1976	Eaton	
/JB/		3,890,958	06-1975	Fister et al.	
/JB/		3,875,488	04-1975	Crocker et al.	
/JB/		3,531,868	10-1970	Stevenson	
/JB/		2,906,179	09-1959	Bower	

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Signature

/Jeffery Brier/

Date  
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<sup>1</sup> EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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(2 of 2)

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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

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Sheet **5** of **8****Complete if Known**

Application Number	10/780,852
Filing Date	February 19, 2004
First Named Inventor	Louis B. ROSENBERG
Art Unit	2173
Examiner Name	Unassigned
Attorney Docket Number	IMMR050/04US

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>2</sup>	Number <sup>3</sup>	Kind Code <sup>4</sup> (if known)			
		EP	0085518	A1	08-1983		
		WO	96/16397		05-1996		
		WO	96/99944		12-1996		
		JP	4-34840		02-1992		
		GB	225491		10-1992		
		WO	9502233		01-1995		
		WO	9502801		01-1995		
		WO	9520787		08-1995		
		WO	9520788		08-1995		
		WO	9532459		11-1995		
		WO	9616397		05-1996		
		WO	9622591		07-1996		
		WO	9642078		12-1996		
		WO	9712357		04-1997		

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INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

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Sheet 6

of

8

## Complete if Known

Application Number	10/780,852
Filing Date	February 19, 2004
First Named Inventor	Louis B. ROSENBERG
Art Unit	2173
Examiner Name	Unassigned
Attorney Docket Number	IMMR050/04US

## OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume and issue number(s), publisher, city and/or country where published.
		<del>Curso Waldo, "Designer's Corner-Useful Technology for Your Idea File Design News," March 7, 1994, pp. 63.</del>
		<del>Akamatsu, et al., "Multimodal Mouse: A Mouse-Type Device with Tactile and Force Display," Presence, vol. 2, No. 1, Winter 1994, pp. 73-80.</del>
		<del>Kelley, et al., "On the Development of a Force-Feedback Mouse and Its Integration into a Graphical User Interface," Symp. on Haptic Interfaces for Virtual Environment and Teleoperator Systems, Int'l Mech. Eng. Congress and Exhibition, Nov. 1994.</del>
		<del>Hayward, et al., "Design and Multi-Objective Optimization of a Linkage for a Haptic Interface," excerpt from Advances in Robot Kinematics and Computationed Geometry, 1994 Kluwer Academic Publishers, pp. 359-368.</del>
		<del>Winey III, Calvin McCoy, "Computer Simulated Visual and Tactile Feedback as an Aid to Manipulator and Vehicle Control," MIT, Jun. 1981, pp. 1-79.</del>
/JB/		Tan, Hong Z et al., "Manual Resolution of Compliance When Work and Force Cues are Minimized," ASME 1993, DSC-vol. 49, pp. 99-104.
/JB/		Kotoku, Tetsuo, "A Predictive Display with Force Feedback and its Application to Remote Manipulation System with Transmission Time Display," IEEE 1992, Jul. 7-10, 1992, pp. 239-248.
/JB/		Sloum, Alexander H., Precision Machine Design, Prentice Hall, 1992, pp. 661-684. "12-V Voice Coil Motor Driver," SI9961 Jun. 6, 1994, pp. 4-10-4-16.
		<del>Kotoku, Tetsuo et al., "Environment Modeling for the Interactive Display (EMID) Used in Teleoperator Systems," IEEE Nov. 3-5, 1991, pp. 99-1004.</del>
		<del>Bejczy, Antal K., "The Phantom Robot: Predictive Display for Teleoperation with Time Delay," IEEE 1990, pp. 546-550.</del>
/JB/		Tan, Hong Z., et al., "Human Factors for the Design of Force-Reflecting Haptic Interfaces," Tan, Srinivasan, Eberman, & Chang, ASME WAM 1994, pp. 1-11.
/JB/		Iwata, Hiroo et al, Volume Haptization, IEEE 1993, pp. 16-18.
/JB/		Fischer, Patrick et al., "Specification and Design of Input Devices for Teleoperation," 1990.
		<del>Bardow, Gngoro et al., "Robustness of Force Feedback," IEEE May 2, 1993, pp. 25-44.</del>
/JB/		Rosenberg, Louis B., "The Use of Virtual Fixtures as Perceptual Overlays to Enhance Operator Performance in Remote Environments," Air Force Material Command, Sep. 1992, pp. 1-42.
Examiner Signature	/Jeffery Brier/	
Date Considered	09/24/2007	

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INFORMATION DISCLOSURE  
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Sheet 7 of 8

## Complete If Known

Application Number	10/780,852
Filing Date	February 19, 2004
First Named Inventor	Louis B. ROSENBERG
Art Unit	2173
Examiner Name	Unassigned
Attorney Docket Number	IMMR050/04US

## OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No.	Include name of the author (In CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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Date  
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Sheet 8

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		Filing Date	February 19, 2004		
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		Group Art Unit			
		Examiner Name			
Sheet	1	of	8	Attorney Docket Number	IMMR-050/04US

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Examiner Initials <sup>o</sup>	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
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Examiner Name					
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Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T <sup>4</sup>
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**INFORMATION DISCLOSURE  
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Sheet	6	of	8	Application Number	
				Filing Date	February 19, 2004
				First Named Inventor	Louis B. ROSENBERG
				Group Art Unit	
				Examiner Name	
				Attorney Docket Number	IMMR-050/04US

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		Filing Date	February 19, 2004
		First Named Inventor	Louis B. ROSENBERG
		Group Art Unit	
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Sheet 7 of 8	Attorney Docket Number	IMMR-050/04US	

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